2017 International Conference on Mechanical, System and Control Engineering, ICMSC 2017, 2017, pages 184-189

Humanoid robot kinematic calibration using industrial manipulator

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Abstract

© 2017 IEEE. Kinematic calibration is a crucial task for humanoid robot locomotion. The paper proposes a novel technique for joint offset calibration using industrial manipulator. Corresponding procedure uses position and orientation data from the manipulator and requires fixing of robots bases and end-effectors with respect to each other. The full pose information is obtaining as the humanoid limbs are moved through predefined configurations. To find joint offsets the least-squares optimization problem is solved. The proposed method is accurate since the industrial manipulator provides high precision. The proposed approach was validated on the calibration of AR601M humanoid robot using Kuka iiwa 14 industrial manipulator.

http://dx.doi.org/10.1109/ICMSC.2017.7959468

Keywords

AR601M, calibration, humanoid, industrial manipulator, KUKA iiwa

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